DATA MODUL
DISPLAYS AND EMBEDDED SOLUTIONS

User Manual

MS-9885

March 2012

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Revision History

Revision	Revision History	Date
V1.1	For PCB v1.x	2011/05

Technical Support

If a problem arises with your system and no solution can be obtained from the user's manual, please contact your place of purchase or local distributor. Alternatively, please try the following help resources for further guidance.

- Visit the MSI website for technical guide, BIOS updates, driver updates, and other information: ***http://www.msi.com/service/download/***

  - Contact our technical staff at: ***http://support.msi.com/***

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Safety Instructions

- Always read the safety instructions carefully.
- Keep this User's Manual for future reference.
- Keep this equipment away from humidity.
- Lay this equipment on a reliable flat surface before setting it up.
- The openings on the enclosure are for air convection hence protects the equipment from overheating. DO NOT COVER THE OPENINGS.
- Make sure the voltage of the power source and adjust properly 110/220V before connecting the equipment to the power inlet.
- Place the power cord such a way that people can not step on it. Do not place anything over the power cord.
- Always Unplug the Power Cord before inserting any add-on card or module.
- All cautions and warnings on the equipment should be noted.
- Never pour any liquid into the opening that could damage or cause electrical shock.
- If any of the following situations arises, get the equipment checked by service personnel:
  - The power cord or plug is damaged.
  - Liquid has penetrated into the equipment.
  - The equipment has been exposed to moisture.
  - The equipment does not work well or you can not get it work according to User's Manual.
  - The equipment has dropped and damaged.
  - The equipment has obvious sign of breakage.
- DO NOT LEAVE THIS EQUIPMENT IN AN ENVIRONMENT UNCONDITIONED, STORAGE TEMPERATURE ABOVE 60°C (140°F), IT MAY DAMAGE THE EQUIPMENT.

CAUTION: Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer.

警告使用者:

這是甲類資訊產品，在居住的環境中使用時，可能會造成無線電干擾，在這種情況下，使用者會被要求採取某些適當的對策。

廢電池請回收
For better environmental protection, waste batteries should be collected separately for recycling or special disposal.

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FCC-B Radio Frequency Interference Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the measures listed below.

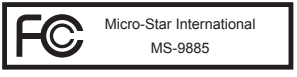
- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/television technician for help.

Notice 1

The changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Notice 2

Shielded interface cables and A.C. power cord, if any, must be used in order to comply with the emission limits.



VOIR LA NOTICE D'INSTALLATION AVANT DE RACCORDER AU RESEAU.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

1) this device may not cause harmful interference, and
2) this device must accept any interference received, including interference that may cause undesired operation.

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WEEE Statement

ENGLISH

To protect the global environment and as an environmentalist, MSI must remind you that...

Under the European Union ("EU") Directive on Waste Electrical and Electronic Equipment, Directive 2002/96/EC, which takes effect on August 13, 2005, products of "electrical and electronic equipment" cannot be discarded as municipal waste anymore and manufacturers of covered electronic equipment will be obligated to take back such products at the end of their useful life. MSI will comply with the product take back requirements at the end of life of MSI-branded products that are sold into the EU. You can return these products to local collection points.

DEUTSCH

Hinweis von MSI zur Erhaltung und Schutz unserer Umwelt

Gemäß der Richtlinie 2002/96/EG über Elektro- und Elektronik-Altgeräte dürfen Elektro- und Elektronik-Altgeräte nicht mehr als kommunale Abfälle entsorgt werden. MSI hat europaweit verschiedene Sammel- und Recyclingunternehmen beauftragt, die in die Europäische Union in Verkehr gebrachten Produkte, am Ende seines Lebenszyklus zurückzunehmen. Bitte entsorgen Sie dieses Produkt zum gegebenen Zeitpunkt ausschliesslich an einer lokalen Altgerätesammelstelle in Ihrer Nähe.

FRANÇAIS

En tant qu'écologiste et afin de protéger l'environnement, MSI tient à rappeler ceci...

Au sujet de la directive européenne (EU) relative aux déchets des équipement électriques et électroniques, directive 2002/96/EC, prenant effet le 13 août 2005, que les produits électriques et électroniques ne peuvent être déposés dans les décharges ou tout simplement mis à la poubelle. Les fabricants de ces équipements seront obligés de récupérer certains produits en fin de vie. MSI prendra en compte cette exigence relative au retour des produits en fin de vie au sein de la communauté européenne. Par conséquent vous pouvez retourner localement ces matériels dans les points de collecte.

РУССКИЙ

Компания MSI предпринимает активные действия по защите окружающей среды, поэтому напоминаем вам, что....

В соответствии с директивой Европейского Союза (ЕС) по предотвращению загрязнения окружающей среды использованным электрическим и электронным оборудованием (директива WEEE 2002/96/EC), вступающей в силу 13 августа 2005 года, изделия, относящиеся к электрическому и электронному оборудованию, не могут рассматриваться как бытовой мусор, поэтому производители вышеперечисленного электронного оборудования обязаны принимать его для переработки по окончании срока службы. MSI обязуется соблюдать требования по приему продукции, проданной под маркой MSI на территории ЕС, в переработку по окончании срока службы. Вы можете вернуть эти изделия в специализированные пункты приема.

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ESPAÑOL

MSI como empresa comprometida con la protección del medio ambiente, recomienda:

Bajo la directiva 2002/96/EC de la Unión Europea en materia de desechos y/o equipos electrónicos, con fecha de rigor desde el 13 de agosto de 2005, los productos clasificados como “eléctricos y equipos electrónicos” no pueden ser depositados en los contenedores habituales de su municipio, los fabricantes de equipos electrónicos, están obligados a hacerse cargo de dichos productos al termino de su período de vida. MSI estará comprometido con los términos de recogida de sus productos vendidos en la Unión Europea al final de su periodo de vida. Usted debe depositar estos productos en el punto limpio establecido por el ayuntamiento de su localidad o entregar a una empresa autorizada para la recogida de estos residuos.

NEDERLANDS

Om het milieu te beschermen, wil MSI u eraan herinneren dat….

De richtlijn van de Europese Unie (EU) met betrekking tot Vervuiling van Electrische en Electronische producten (2002/96/EC), die op 13 Augustus 2005 in zal gaan kunnen niet meer beschouwd worden als vervuiling. Fabrikanten van dit soort producten worden verplicht om producten retour te nemen aan het eind van hun levenscyclus. MSI zal overeenkomstig de richtlijn handelen voor de producten die de merknaam MSI dragen en verkocht zijn in de EU. Deze goederen kunnen geretourneerd worden op lokale inzamelingspunten.

SRPSKI

Da bi zaštitili prirodnu sredinu, i kao preduzeće koje vodi računa o okolini i prirodnoj sredini, MSI mora da vas podesti da…

Po Direktivi Evropske unije (“EU”) o odbačenoj ekektronskoj i električnoj opremi, Direktiva 2002/96/EC, koja stupa na snagu od 13. Avgusta 2005, proizvodi koji spadaju pod “elektronsku i električnu opremu” ne mogu više biti odbačeni kao običan otpad i proizvođači ove opreme biće prinuđeni da uzmu natrag ove proizvode na kraju njihovog uobičajenog veka trajanja. MSI će poštovati zahtev o preuzimanju ovakvih proizvoda kojima je istekao vek trajanja, koji imaju MSI oznaku i koji su prodati u EU. Ove proizvode možete vratiti na lokalnim mestima za prikupljanje.

POLSKI

Aby chronić nasze środowisko naturalne oraz jako firma dbająca o ekologię, MSI przypomina, że...

Zgodnie z Dyrektywą Unii Europejskiej (“UE”) dotyczącą odpadów produktów elektrycznych i elektronicznych (Dyrektywa 2002/96/EC), która wchodzi w życie 13 sierpnia 2005, tzw. “produkty oraz wyposażenie elektryczne i elektroniczne “ nie mogą być traktowane jako śmieci komunalne, tak więc producenci tych produktów będą zobowiązani do odbierania ich w momencie gdy produkt jest wycofywany z użycia. MSI wypełni wymagania UE, przyjmując produkty (sprzedawane na terenie Unii Europejskiej) wycofywane z użycia. Produkty MSI będzie można zwracać w wyznaczonych punktach zbiorczych.

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TÜRKÇE

Çevreci özelliğiyle bilinen MSI dünyada çevreyi korumak için hatırlatır:

Avrupa Birliği (AB) Kararnamesi Elektrik ve Elektronik Malzeme Atığı, 2002/96/EC Kararnamesi altında 13 Ağustos 2005 tarihinden itibaren geçerli olmak üzere, elektrikli ve elektronik malzemeler diğer atıklar gibi çöpe atılamayacak ve bu elektonik cihazların üreticileri, cihazların kullanım süreleri bittikten sonra ürünleri geri toplamakla yükümlü olacaktır. Avrupa Birliği'ne satılan MSI markalı ürünlerin kullanım süreleri bittiğinde MSI ürünlerin geri alınması isteği ile işbirliği içerisinde olacaktır. Ürünlerinizi yerel toplama noktalarına bırakabilirsiniz.

ČESKY

Záleží nám na ochraně životního prostředí - společnost MSI upozorňuje...

Podle směrnice Evropské unie ("EU") o likvidaci elektrických a elektronických výrobků 2002/96/EC platné od 13. srpna 2005 je zakázáno likvidovat "elektrické a elektronické výrobky" v běžném komunálním odpadu a výrobci elektronických výrobků, na které se tato směrnice vztahuje, budou povinni odebírat takové výrobky zpět po skončení jejich životnosti. Společnost MSI splní požadavky na odebírání výrobků značky MSI, prodávaných v zemích EU, po skončení jejich životnosti. Tyto výrobky můžete odevzdat v místních sběrnách.

MAGYAR

Annak érdekében, hogy környezetünket megvédjük, illetve környezetvédőként fellépve az MSI emlékezteti Önt, hogy ...

Az Európai Unió („EU") 2005. augusztus 13-án hatályba lépő, az elektromos és elektronikus berendezések hulladékairól szóló 2002/96/EK irányelve szerint az elektromos és elektronikus berendezések többé nem kezelhetőek lakossági hulladékként, és az ilyen elektronikus berendezések gyártói kötelessé válnak az ilyen termékek visszavételére azok hasznos élettartama végén. Az MSI betartja a termékvisszavétellel kapcsolatos követelményeket az MSI márkanév alatt az EU-n belül értékesített termékek esetében, azok élettartamának végén. Az ilyen termékeket a legközelebbi gyűjtőhelyre viheti.

ITALIANO

Per proteggere l'ambiente, MSI, da sempre amica della natura, ti ricorda che….

In base alla Direttiva dell'Unione Europea (EU) sullo Smaltimento dei Materiali Elettrici ed Elettronici, Direttiva 2002/96/EC in vigore dal 13 Agosto 2005, prodotti appartenenti alla categoria dei Materiali Elettrici ed Elettronici non possono più essere eliminati come rifiuti municipali: i produttori di detti materiali saranno obbligati a ritirare ogni prodotto alla fine del suo ciclo di vita. MSI si adeguerà a tale Direttiva ritirando tutti i prodotti marchiati MSI che sono stati venduti all'interno dell'Unione Europea alla fine del loro ciclo di vita. È possibile portare i prodotti nel più vicino punto di raccolta

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Chapter 1
Overview

Thank you for choosing the IM-PV-C, an excellent industrial computer board from MSI.

Based on the innovative **Intel® ICH8M** chipset for optimal system efficiency, the IM-PV-C accommodates the **Intel® Pineview D / Pineview M** processor and supports 2 DDR3 800MHz SO-DIMM slots to provide the maximum of 4GB (Pineview D)/ 2GB (Pineview M) memory capacity.

In the entry-level and mid-range market segment, the IM-PV-C provides a high-performance solution for today's front-end and general purpose workstation, as well as in the future.

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Mainboard Specifications

CPU (Optional)	■ Intel Pineview D / Pineview M processor (CPU + GPU + Northbridge)
Chipset	■ South Bridge: Intel ICH8M chipset
Memory	■ 2 unbuffered DDR3 800MHz SO-DIMM slots ■ Supports the maximum of 4GB (Pineview D)/ 2GB (Pineview M)
LAN	■ Supports Gigabit LAN by Intel 82574L and 82567V Gb Ethernet controller
SATA	■ 3 SATA 3Gb/s ports by Intel ICH8M
Audio	■ HDA Codec by Realtek® ALC887VD ■ Compliant with Azalia 1.0 specs ■ With 2W amplifier
Graphics	■ Onboard graphics integrated in CPU
CF	■ 1 CompactFlash socket by Intel ICH8M
Back Panel I/O & Connec-tors/Pin-headers	■ Back Panel I/O - 1 RS-232/422/485 serial port (COM1) - 1 RS-232 serial port (COM2) (Optional) - 1 VGA port - 1 DVI-I port (Optional) - 2 RJ-45 LAN jacks (Optional) - 3 USB ports (2 * normal + 1 * 12V powered USB) - 1 Line-In audio jack (Optional) - 1 Line-Out audio jack - 1 Microphone-In jack
	■ Onboard Connectors/Pinheaders - 1 LVDS connector - 1 chassis intrusion pinheader - 2 USB 2.0 pinheaders (4 ports) - 1 parallel port connector - 3 serial port connectors - 1 GPIO connector - 1 keyboard/mouse connector - 1 amplifier pinheader - 1 TPM connector

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Slot	■ 1 32-bit/33MHz PCI slot ■ 1 mini PCI-E slot
Form Factor	■ Mini-ITX: 170mm x 170mm
Environmental	■ Operating Temperature: 0°C to 60°C ■ Storage Temperature: -20°C to 80°C ■ Humidity: 0% ~ 95% RH, Non-Condensing

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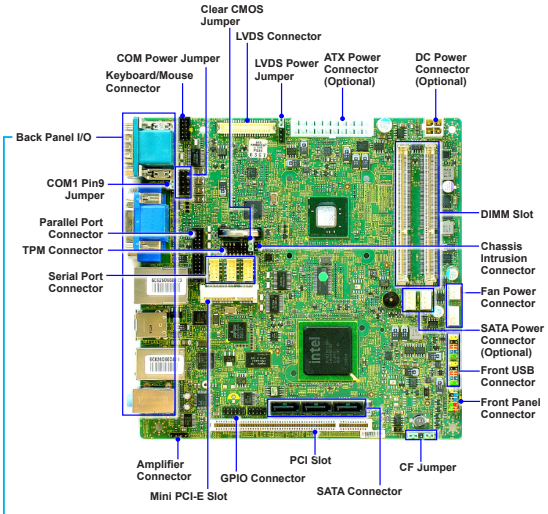
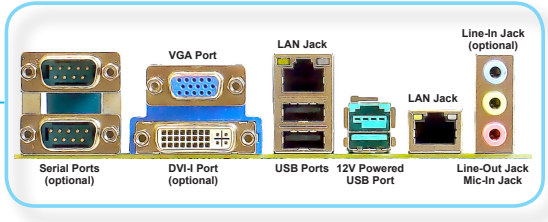
Mainboard Layout

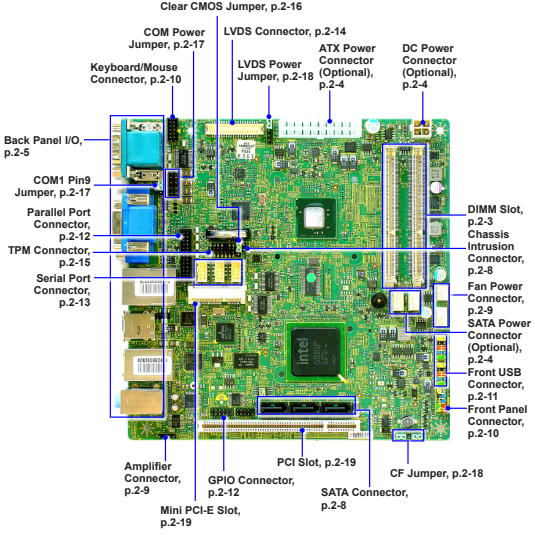




Chapter 2
Hardware Setup

This chapter provides you with the information on mainboard hardware configurations. Incorrect setting of jumpers and connectors may damage your mainboard. Please pay special attention not to connect these headers in wrong direction. DO NOT adjust any jumper while the mainboard is powered on.

Quick Components Guide



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Memory

Installing Memory Modules

1. Locate the SO-DIMM slot. Align the notch on the DIMM with the key on the slot and insert the DIMM into the slot.
2. Push the DIMM gently downwards until the slot levers click and lock the DIMM in place.
3. To uninstall the DIMM, flip the slot levers outwards and the DIMM will be released instantly.

Important

You can barely see the golden finger if the memory module is properly inserted in the DIMM slot.

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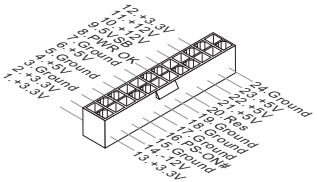
Power Supply

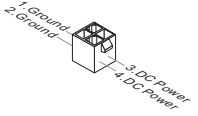
ATX Power Connector: ATX1 (Optional)

This ATX connector provides power to the system.



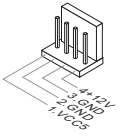
DC Power Connector: JPWR1 (Optional)

This DC-In connector provides 12V/19V/24V power input.



SATA Power Connector: JPWR2, JPWR3 (Optional)

This DC-In connector provides DC power output for SATA devices.



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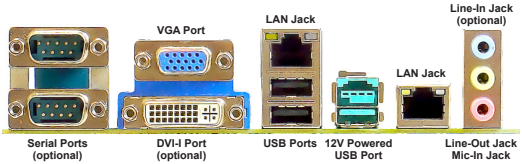
Back Panel I/O



▸ RS-232/422/485 Serial Port Connector (Optional)

The serial port is a 16550A high speed communications port that sends/ receives 16 bytes FIFOs. You can attach a serial mouse or other serial devices directly to the connector.

RS-232

PIN	SIGNAL	DESCRIPTION
1	DCD	Data Carrier Detect
2	RXD	Receive Data
3	TXD	Transmit Data
4	DTR	Data Terminal Ready
5	GND	Signal Ground
6	DSR	Data Set Ready
7	RTS	Request To Send
8	CTS	Clear To Send
9	VCC_COM1 or RING	Voltage output or RING select setting by JCOM1_PIN9_SEL1, Voltage select setting by JCOMP1

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RS-422

PIN	SIGNAL	DESCRIPTION
1	422 TXD-	Transmit Data, Negative
2	422 RXD+	Receive Data, Positive
3	422 TXD+	Transmit Data, Positive
4	422 RXD-	Receive Data, Negative
5	GND	Signal Ground
6	NC	No Connection
7	NC	No Connection
8	NC	No Connection
9	NC	No Connection

RS-485

PIN	SIGNAL	DESCRIPTION
1	485 TXD-	Transmit Data, Negative
2	NC	No Connection
3	485 TXD+	Transmit Data, Positive
4	NC	No Connection
5	GND	Signal Ground
6	NC	No Connection
7	NC	No Connection
8	NC	No Connection
9	NC	No Connection

- **VGA Port**

The DB15-pin female connector is provided for monitor.

- **DVI-I Port (Optional)**

The DVI-I (Digital Visual Interface-Integrated) connector allows you to connect an LCD monitor. It provides a high-speed digital interconnection between the computer and its display device. To connect an LCD monitor, simply plug your monitor cable into the DVI connector, and make sure that the other end of the cable is properly connected to your monitor (refer to your monitor manual for more information.)

- **USB Port**

The USB (Universal Serial Bus) port is for attaching USB devices such as keyboard, mouse, or other USB-compatible devices.

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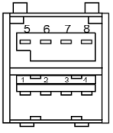
▸ 12V Powered USB Port

The Powered USB port provides a single cable connection that supplies both the standard USB communication signals and two additional wire pairs for extra power (12V).

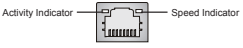


Powered USB Port Description

PIN	SIGNAL	DESCRIPTION
1	VCC	+5V
2	-DATA	Negative Data
3	+DATA	Positive Data
4	GROUND	Ground
5	GROUND	12V GROUND
6	12V	12V
7	12V	12V
8	GROUND	12V GROUND

▸ LAN Jack (Optional)

The standard RJ-45 LAN jack is for connection to the Local Area Network (LAN). You can connect a network cable to it.



		Left LED	Right LED
		Active LED	100M/1000M Speed LED
LED Color		Green	Green/Yellow
10M Cable Plug-in	No Transmission	Green (Lighting)	OFF
	Transmission	Green (Blinking)	OFF
100M Cable Plug-in	No Transmission	Green (Lighting)	Green (Lighting)
	Transmission	Green (Blinking)	Green (Lighting)
1000M Cable Plug-in	No Transmission	Green (Lighting)	Yellow (Lighting)
	Transmission	Green (Blinking)	Yellow (Lighting)
In S3/S4/S5 Standby State		Green (Lighting)	OFF

▸ Audio Ports (Optional)

- Line-In (Blue) - Line In, is used for external CD player, tapeplayer or other audio devices.
- Line-Out (Green) - Line Out, is a connector for speakers or headphones.
- Mic (Pink) - Mic, is a connector for microphones.

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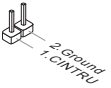
Connector

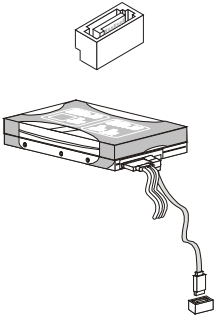
Chassis Intrusion Connector: JCI1

This connector is provided to connect the chassis intrusion switch cable. If the chassis is opened, the chassis intrusion mechanism will be activated. The system will record this status and show a warning message on the screen. To clear the warning, you must enter the BIOS utility and clear the record.



Serial ATA Connector: SATA1 ~ SATA3

This connector is a high-speed Serial ATA interface port. Each connector can connect one Serial ATA device.



Important

Please do not fold the Serial ATA cable into 90-degree angle. Otherwise, data loss may occur during transmission.

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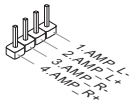
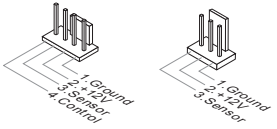
Audio Amplifier Connector: JAMP1

The JAMP1 is used to connect audio amplifiers to enhance audio performance.



Fan Power Connector: CPUFAN1, SYSFAN1

The fan power connector supports system cooling fan with +12V. When connecting the wire to the connectors, always note that the red wire is the positive and should be connected to the +12V; the black wire is Ground and should be connected to GND. If the mainboard has a System Hardware Monitor chipset onboard, you must use a specially designed fan with speed sensor to take advantage of the CPU fan control.



Important

- *Please refer to the recommended CPU fans at processor's official website or consult the vendors for proper CPU cooling fan.*
- *Fan cooler set with 3- or 4-pin power connector are both available for CPUFAN1.*

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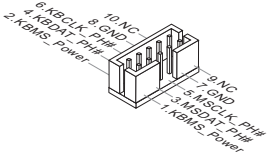
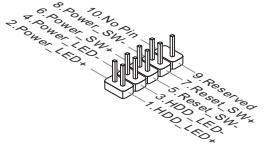
Keyboard/Mouse Connector: JKB_MS1

This connector is used to connect PS/2 keyboard & mouse.



Front Panel Connector: JFP1

This front panel connector is provided for electrical connection to the front panel switches & LEDs and is compliant with Intel Front Panel I/O Connectivity Design Guide.



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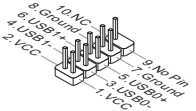
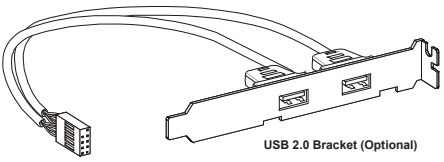
Front USB Connector: JUSB1, JUSB2

This connector, compliant with Intel I/O Connectivity Design Guide, is ideal for connecting high-speed USB interface peripherals such as USB HDD, digital cameras, MP3 players, printers, modems and the like.





USB 2.0 Bracket (Optional)

Important

Note that the pins of VCC and GND must be connected correctly to avoid possible damage.

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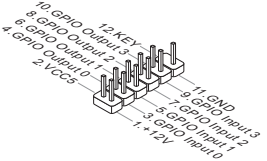
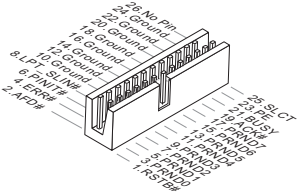
GPIO Connector: JGPIO1

This connector is provided for the General-Purpose Input/Output (GPIO) peripheral module.



Parallel Port Connector: JLPT1

The mainboard provides a 26-pin header for connection to an optional parallel port bracket. The parallel port is a standard printer port that supports Enhanced Parallel Port (EPP) and Extended Capabilities Parallel Port (ECP) mode.



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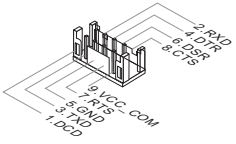
RS-232 Serial Port Connector: COM3, COM4, COM5

This connector is a 16550A high speed communications port that sends/ receives 16 bytes FIFOs. You can attach a serial device to it through an optional serial port bracket.



PIN	SIGNAL	DESCRIPTION
1	DCD	Data Carrier Detect
2	RXD	Receive Data
3	TXD	Transmit Data
4	DTR	Data Terminal Ready
5	GND	Signal Ground
6	DSR	Data Set Ready
7	RTS	Request To Send
8	CTS	Clear To Send
9	VCC_COM	12V or 5V power output, selected by JCOMP

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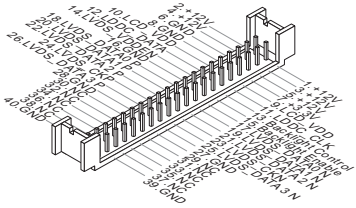
LVDS Connector: JLVDS1

The LVDS (Low Voltage Differential Signal) connector provides a digital interface typically used with flat panels. After connecting an LVDS interface flat panel to the JLVDS1, be sure to check the panel datasheet and set the JVDD1 jumper to proper power voltage.



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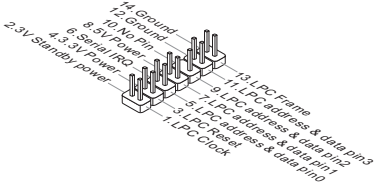
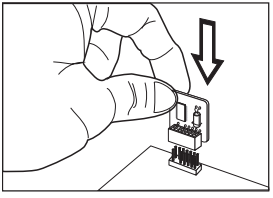
TPM Module Connector: JTPM1

This connector connects to a TPM (Trusted Platform Module) module (optional). Please refer to the TPM security platform manual for more details and usages.





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Jumper

Clear CMOS Jumper: JBAT1

There is a CMOS RAM onboard that has a power supply from an external battery to keep the data of system configuration. With the CMOS RAM, the system can automatically boot OS every time it is turned on. If you want to clear the system configuration, set the jumper to clear data.

JBAT1 Normal Clear CMOS

Important

You can clear CMOS by shorting 2-3 pin while the system is off. Then return to 1-2 pin position. Avoid clearing the CMOS while the system is on; it will damage the mainboard.

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COM1 Pin9 Select Jumper: JCOM1_PIN9_SEL1

This jumper is used to select the pin 9 function of the COM1 port.

JCOM1_PIN9_SEL1

5V or 12V

Ring

COM Power Select Jumper: JCOMP1 ~ JCOMP5

These jumpers are used to select the pin 9 power voltage of the COM1 ~ COM5 serial ports.

JCOMP1~5

+5V

+12V

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LVDS Power Jumper: JVDD1

Use this jumper to specify the operation voltage of the LVDS interfaced flat panel.

JVDD1 +3.3V +5V +12V

CF Mode Select Jumper: J1

This jumper is used to select Master/Slave mode of the CF device.

J1 Master Slave

CF Power Select Jumper: J2

This jumper is used to select the power voltage of the CF device.

J2 VCC3 VCC5

Slot

Mini PCI-E (Peripheral Component Interconnect Express) Slot

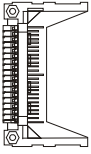
The Mini PCI-E slot is provided for wireless LAN card, TV tuner card, and Robson NAND Flash card.

PCI (Peripheral Component Interconnect) Slot

The PCI slot supports LAN card, SCSI card, USB card, and other add-on cards that comply with PCI specifications.

CompactFlash Socket

This socket supports CompactFlash cards.



Important

When adding or removing expansion cards, make sure that you unplug the power supply first. Meanwhile, read the documentation for the expansion card to configure any necessary hardware or software settings for the expansion card, such as jumpers, switches or BIOS configuration.

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Chapter 3
BIOS Setup

This chapter provides information on the BIOS Setup program and allows you to configure the system for optimum use.

You may need to run the Setup program when:

- An error message appears on the screen during the system booting up, and requests you to run SETUP.
- You want to change the default settings for customized features.

Entering Setup

Power on the computer and the system will start POST (Power On Self Test) process. When the message below appears on the screen, press <DEL> key to enter Setup.

Press DEL to enter SETUP

If the message disappears before you respond and you still wish to enter Setup, restart the system by turning it OFF and On or pressing the RESET button. You may also restart the system by simultaneously pressing <Ctrl>, <Alt>, and <Delete> keys.

Important

- *The items under each BIOS category described in this chapter are under continuous update for better system performance. Therefore, the description may be slightly different from the latest BIOS and should be held for reference only.*
- *Upon boot-up, the 1st line appearing after the memory count is the BIOS version. It is usually in the format:*

A9885IMS V1.0 011511 where:

1st digit refers to BIOS maker as A = AMI, W = AWARD, and P = PHOENIX.

2nd - 5th digit refers to the model number.

6th digit refers to the chipset as I = Intel, N = NVIDIA,

A = AMD and V = VIA.

7th - 8th digit refers to the customer as MS = all standard customers.

V1.0 refers to the BIOS version.

011511 refers to the date this BIOS was released.

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Control Keys

← →	Select Screen
↑ ↓	Select Item
+ -	Change Field
Tab	Select Field
F1	General Help
F10	Save and Exit
Esc	Exit

Getting Help

After entering the Setup menu, the first menu you will see is the Main Menu.

Main Menu

The main menu lists the setup functions you can make changes to. You can use the arrow keys (↑↓) to select the item. The on-line description of the highlighted setup function is displayed at the bottom of the screen.

Sub-Menu

If you find a right pointer symbol appears to the left of certain fields that means a sub-menu can be launched from this field. A sub-menu contains additional options for a field parameter. You can use arrow keys (↑↓) to highlight the field and press <Enter> to call up the sub-menu. Then you can use the control keys to enter values and move from field to field within a sub-menu. If you want to return to the main menu, just press the <Esc >.

General Help <F1>

The BIOS setup program provides a General Help screen. You can call up this screen from any menu by simply pressing <F1>. The Help screen lists the appropriate keys to use and the possible selections for the highlighted item. Press <Esc> to exit the Help screen.

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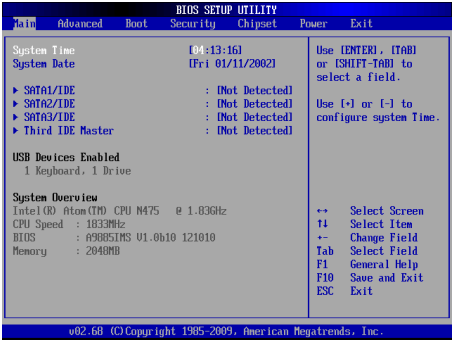
The Menu Bar


BIOS SETUP UTILITY
Main Advanced Boot Security Chipset Power Exit
System Time [04:13:16]
System Date [Fri 01/11/2002]
▸ SATA1/IDE : [Not Detected]
▸ SATA2/IDE : [Not Detected]
▸ SATA3/IDE : [Not Detected]
▸ Third IDE Master : [Not Detected]
USB Devices Enabled
1 Keyboard, 1 Drive
System Overview
Intel(R) Atom(TM) CPU N475 @ 1.83GHz
CPU Speed : 1833MHz
BIOS : A9805IMS V1.0b10 121010
Memory : 2048MB
Use [ENTER], [TAB] or [SHIFT-TAB] to select a field.
Use [+] or [-] to configure system Time.
↔ Select Screen
↑↓ Select Item
+- Change Field
Tab Select Field
F1 General Help
F10 Save and Exit
ESC Exit
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▸ Main

Use this menu for basic system configurations, such as time, date etc.

▸ Advanced

Use this menu to set up the items of special enhanced features.

▸ Boot

Use this menu to specify the priority of boot devices.

▸ Security

Use this menu to set supervisor and user passwords.

▸ Chipset

This menu controls the advanced features of the onboard Northbridge and Southbridge.

▸ Power

Use this menu to specify your settings for power management.

▸ Exit

This menu allows you to load the BIOS default values or factory default settings into the BIOS and exit the BIOS setup utility with or without changes.

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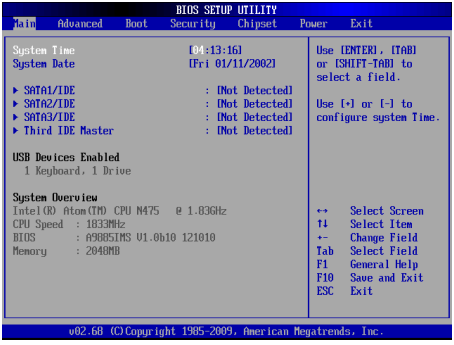
Main


BIOS SETUP UTILITY
Main Advanced Boot Security Chipset Power Exit
System Time [04:13:16]
System Date [Fri 01/11/2002]
▸ SATA1/IDE : [Not Detected]
▸ SATA2/IDE : [Not Detected]
▸ SATA3/IDE : [Not Detected]
▸ Third IDE Master : [Not Detected]
USB Devices Enabled
1 Keyboard, 1 Drive
System Overview
Intel(R) Atom(TM) CPU N475 @ 1.83GHz
CPU Speed : 1833MHz
BIOS : A9885IMS V1.0b10 121010
Memory : 2048MB
Use [ENTER], [TAB] or [SHIFT-TAB] to select a field.
Use [+] or [-] to configure system Time.
↔ Select Screen
↑↓ Select Item
+- Change Field
Tab Select Field
F1 General Help
F10 Save and Exit
ESC Exit
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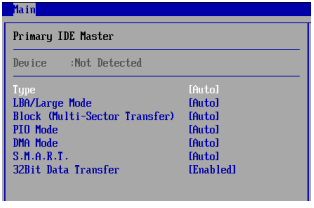
▸ **System Time**

This setting allows you to set the system time. The time format is <Hour> <Minute> <Second>.

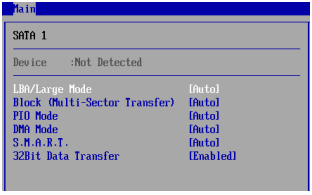
▸ **System Date**

This setting allows you to set the system date. The date format is <Day>, <Month> <Date> <Year>.

▸ **SATA1/IDE, SATA2/IDE, SATA3/IDE, Third IDE Master**



Data Modul AG - www.data-modul.com



[Type]	Press PgUp/<+> or PgDn/<-> to select [Manual], [None] or [Auto] type. Note that the specifications of your drive must match with the drive table. The hard disk will not work properly if you enter improper information for this category. If your hard disk drive type is not matched or listed, you can use [Manual] to define your own drive type manually.
[LBA/Large Mode]	Enabling LBA causes Logical Block Addressing to be used in place of Cylinders, Heads and Sectors
[Block (Multi-Sector Transfer)]	Any selection except Disabled determines the number of sectors transferred per block
[PIO Mode]	Indicates the type of PIO (Programmed Input/Output)
[DMA Mode]	Indicates the type of Ultra DMA
[S.M.A.R.T.]	This allows you to activate the S.M.A.R.T. (Self-Monitoring Analysis & Reporting Technology) capability for the hard disks. S.M.A.R.T is a utility that monitors your disk status to predict hard disk failure. This gives you an opportunity to move data from a hard disk that is going to fail to a safe place before the hard disk becomes offline.
[32 Bit Data Transfer]	Enables 32-bit communication between CPU and IDE controller

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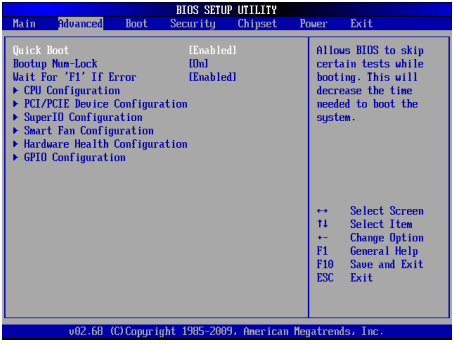
Advanced


BIOS SETUP UTILITY
Main Advanced Boot Security Chipset Power Exit
Quick Boot [Enabled]
Bootup Num-Lock [On]
Wait For 'F1' If Error [Enabled]
▸ CPU Configuration
▸ PCI/PCIE Device Configuration
▸ SuperIO Configuration
▸ Smart Fan Configuration
▸ Hardware Health Configuration
▸ GPIO Configuration
Allows BIOS to skip certain tests while booting. This will decrease the time needed to boot the system.
↔ Select Screen
↑↓ Select Item
+- Change Option
F1 General Help
F10 Save and Exit
ESC Exit
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▸ **Quick Boot**

Enabling this setting will cause the BIOS power-on self test routine to skip some of its tests during bootup for faster system boot.

▸ **Bootup Num-Lock**

This setting is to set the Num Lock status when the system is powered on. Setting to [On] will turn on the Num Lock key when the system is powered on. Setting to [Off] will allow users to use the arrow keys on the numeric keypad.

▸ **Wait For 'F1' If Error**

When this setting is set to [Enabled] and the boot sequence encounters an error, it asks you to press F1. If disabled, the system continues to boot without waiting for you to press any keys.

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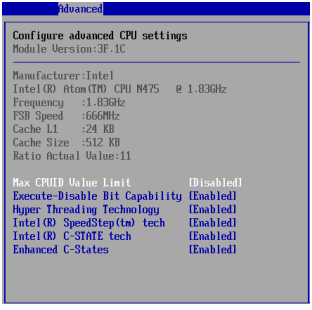
▸ CPU Configuration



▸ Max CPUID Value Limit

The Max CPUID Value Limit BIOS feature allows you to circumvent problems with older operating systems that do not support the Intel Pentium 4 processor with Hyper-Threading Technology. When enabled, the processor will limit the maximum CPUID input value to 03h when queried, even if the processor supports a higher CPUID input value. When disabled, the processor will return the actual maximum CPUID input value of the processor when queried.

▸ Execute Disable Bit Capability

Intel's Execute Disable Bit functionality can prevent certain classes of malicious "buffer overflow" attacks when combined with a supporting operating system. This functionality allows the processor to classify areas in memory by where application code can execute and where it cannot. When a malicious worm attempts to insert code in the buffer, the processor disables code execution, preventing damage or worm propagation.

▸ Hyper Threading Technology

The processor uses Hyper-Threading technology to increase transaction rates and reduces end-user response times. The technology treats the two cores inside the processor as two logical processors that can execute instructions simultaneously. In this way, the system performance is highly improved. If you disable the function, the processor will use only one core to execute the instructions. Please disable this item if

your operating system doesn't support HT Function, or unreliability and instability may occur.

▸ **Intel(R) SpeedStep(tm) Tech**

EIST (Enhanced Intel SpeedStep Technology) allows the system to dynamically adjust processor voltage and core frequency, which can result in decreased average power consumption and decreased average heat production.

▸ **Intel(R) C-State Tech**

C-state performance indicates the ability to run the processor in lower power states when the PC is idle. This setting enables/disables the C-State Configuration for power saving purposes.

▸ **Enhanced C-States**

This setting enables/disables enhanced C-states.

▸ **PCI/PCIE Device Configuration**

▸ **USB Functions**

This setting specifies the operation mode of the onboard USB controller.

▸ **USB 2.0 Controller**

This setting enables/disables the onboard USB controller.

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▸ **Legacy USB Support**

Set to [Enabled] if you need to use any USB 1.1/2.0 device in the operating system that does not support or have any USB 1.1/2.0 driver installed, such as DOS and SCO Unix.

▸ **Audio Controller**

This setting enables/disables the onboard audio controller.

▸ **GbE LAN Boot**

This setting enables/disables GbE LAN boot.

▸ **LAN Option ROM**

This setting enables/disables the initialization of the onboard LAN Boot ROM during bootup. Selecting [Disabled] will speed up the boot process.

▸ **Super IO Configuration**

▸ **Serial Port 1/ 2/ 3/ 4/ 5 Address, Parallel Port Address**

Select an address for the specified serial/parallel port.

▸ **Serial Port 1/ 2/ 3/ 4/ 5 IRQ**

Select a corresponding interrupt for the specified serial port.

▸ **Watch Dog**

You can enable the system watch-dog timer, a hardware timer that generates a reset when the software that it monitors does not respond as expected each time the watch dog polls it.

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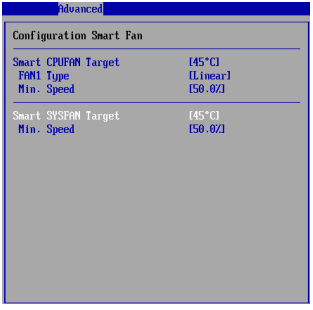
▸ **Smart Fan Configuration**



▸ **Smart CPUFAN Target**

This setting allows users to set a target temperature for the Smart Fan feature. Smart Fan is an excellent feature which will adjust the CPU/system fan speed automatically depending on the current CPU/system temperature, avoiding the overheating to damage your system.

▸ **FAN1 Type**

This setting specifies the fan type.

▸ **Min. Speed**

This setting specifies the minimum fan speed.

▸ **Smart SYSFAN Target**

This setting allows users to set a target temperature for the Smart Fan feature. Smart Fan is an excellent feature which will adjust the CPU/system fan speed automatically depending on the current CPU/system temperature, avoiding the overheating to damage your system.

▸ **Min. Speed**

This setting specifies the minimum fan speed.

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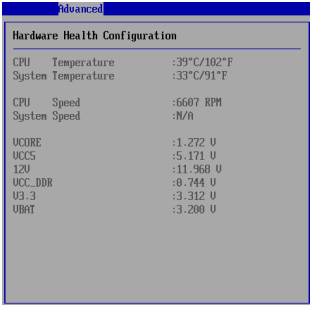
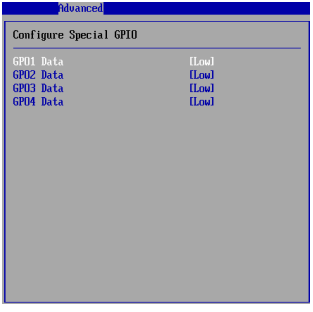
▸ **Hardware Health Configuration**

These items display the current status of all monitored hardware devices/ components such as voltages, temperatures and all fans' speeds.



▸ **GPIO Configuration**



▸ **GPO 1/2/3/4 Data**

This setting specifies the GPO data.

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Boot

BIOS SETUP UTILITY
Main Advanced Boot Security Chipset Power Exit
1st Boot Device [USB:MITSUMI USB FD]
Try Other Boot Devices [No]
▸ Removable Drives
Specifies the boot sequence from the available devices.
A device enclosed in parenthesis has been disabled in the corresponding type menu.
↔ Select Screen
↑↓ Select Item
+- Change Option
F1 General Help
F10 Save and Exit
ESC Exit
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▸ **1st Boot Device**

This setting allows users to set the sequence of boot devices where BIOS attempts to load the disk operating system.

▸ **Try Other Boot Devices**

This setting determines whether or not to try other boot devices when the preset boot device is not available.

▸ **Removable Drives**

This setting allows users to set the priority of the removable devices. First press <Enter> to enter the sub-menu. Then you may use the arrow keys (↑ ↓) to select the desired device, then press <+>, <-> or <PageUp>, <PageDown> key to move it up/down in the priority list.

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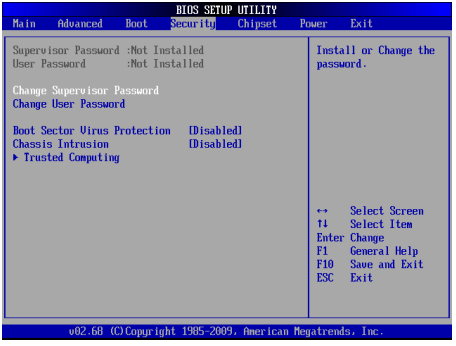
Security



▸ **Supervisor Password / Change Supervisor Password**

Supervisor Password controls access to the BIOS Setup utility. These settings allow you to set or change the supervisor password.

▸ **User Password / Change User Password**

User Password controls access to the system at boot. These settings allow you to set or change the user password.

▸ **Boot Sector Virus Protection**

This function protects the BIOS from accidental corruption by unauthorized users or computer viruses.

▸ **Chassis Intrusion**

The field enables or disables the feature of recording the chassis intrusion status and issuing a warning message if the chassis is once opened. To clear the warning message, set the field to [Reset]. The setting of the field will automatically return to the default value later.

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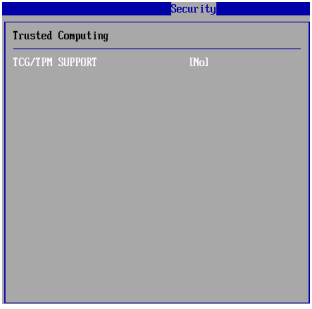
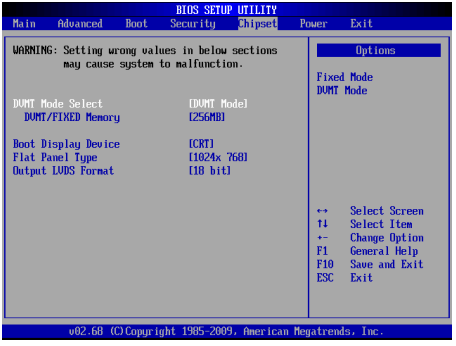
▸ **Trusted Computing**



▸ **TCG/TPM Support**

This setting controls the Trusted Platform Module (TPM) designed by the Trusted Computing Group (TCG). TPMs are special-purpose integrated circuits (ICs) built into a variety of platforms to enable strong user authentication and machine attestation - essential to prevent inappropriate access to confidential and sensitive information and to protect against compromised networks.

Chipset



▸ **DVMT Mode Select**

Intel's Dynamic Video Memory Technology (DVMT) allows the system to dynamically allocate memory resources according to the demands of the system at any point in time. The key idea in DVMT is to improve the efficiency of the memory allocated to either system or graphics processor.

It is recommended that you set this BIOS feature to DVMT Mode for maximum performance. Setting it to DVMT Mode ensures that system memory is dynamically allocated for optimal balance between graphics and system performance.

▸ **DVMT/FIXED Memory**

When set to DVMT/FIXED Mode, the graphics driver will allocate a fixed amount of memory as dedicated graphics memory, as well as allow more system memory to be dynamically allocated between the graphics processor and the operating system.

▸ **Boot Display Device**

Use the field to select the type of device you want to use as the display(s) of the system.

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▸ **Flat Panel Type**

This setting allows you to set your preferences for the boot display device.

▸ **Output LVDS Format**

This setting allows you to set the output format of LVDS.

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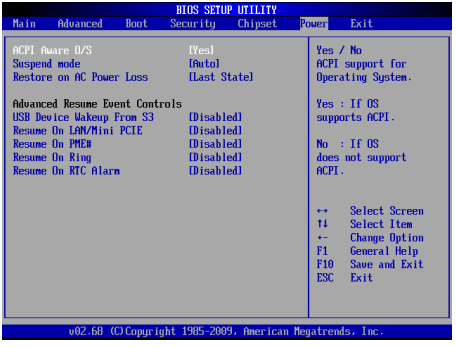
Power


BIOS SETUP UTILITY
Main Advanced Boot Security Chipset Power Exit
ACPI Aware O/S [Yes]
Suspend mode [Auto]
Restore on AC Power Loss [Last State]
Advanced Resume Event Controls
USB Device Wakeup From S3 [Disabled]
Resume On LAN/Mini PCIE [Disabled]
Resume On PME# [Disabled]
Resume On Ring [Disabled]
Resume On RTC Alarm [Disabled]
Yes / No
ACPI support for Operating System.
Yes : If OS supports ACPI.
No : If OS does not support ACPI.
↔ Select Screen
↑↓ Select Item
+- Change Option
F1 General Help
F10 Save and Exit
ESC Exit
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▸ **ACPI Aware O/S**

This item is to activate the ACPI (Advanced Configuration and Power Management Interface) Function. If your operating system is ACPI-aware, select [Yes].

▸ **Suspend Mode**

This item specifies the power saving modes for ACPI function. If your operating system supports ACPI, you can choose to enter the Standby mode in S1 (POS) or S3 (STR) fashion through the setting of this field.

▸ **Restore on AC Power Loss**

This setting specifies whether your system will reboot after a power failure or interrupt occurs. Available settings are:

[Power Off]	Leaves the computer in the power off state.
[Power On]	Leaves the computer in the power on state.
[Last State]	Restores the system to the previous status before power failure or interrupt occurred.

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▸ **USB Device WakeUp from S3**

The item allows the activity of the USB device to wake up the system from S3 (Suspend to RAM) sleep state.

▸ **Resume On LAN/Mini PCIE**

This field specifies whether the system will be awakened from power saving modes when activity or input signal of onboard LAN/mini PCI-E is detected.

▸ **Resume On PME#**

When setting to [Enabled], this setting allows your system to be awakened from the power saving modes through any event on PME (Power Management Event).

▸ **Resume On Ring**

When set to [Enabled], the system will resume from the standby or suspend power saving mode whenever Modem Ring In event occurs.

▸ **Resume On RTC Alarm**

When [Enabled], your can set the date and time at which the RTC (real-time clock) alarm awakens the system from suspend mode.

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Exit

BIOS SETUP UTILITY
Main Advanced Boot Security Chipset Power Exit
Save Changes and Exit
Discard Changes and Exit
Discard Changes
Load Optimal Defaults
Load Failsafe Defaults
Exit system setup after saving the changes.
F10 key can be used for this operation.
↔ Select Screen
↑↓ Select Item
Enter Go to Sub Screen
F1 General Help
F10 Save and Exit
ESC Exit
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▸ **Save Changes and Exit**

Save changes to CMOS and exit the Setup Utility.

▸ **Discard Changes and Exit**

Abandon all changes and exit the Setup Utility.

▸ **Discard Changes**

Abandon all changes and continue with the Setup Utility.

▸ **Load Optimal Defaults**

Use this menu to load the default values set by the mainboard manufacturer specifically for optimal performance of the mainboard.

▸ **Load Failsafe Defaults**

Use this menu to load the default values set by the BIOS vendor for stable system performance.

Chapter 4
Chrontel CH7036

The CH7036 is specifically designed for Consumer Electronics Devices and Personal Computers that require High Definition (HD) Content video playback on the external displays. This IC implements an advanced LVDS receiver, a powerful video encoder, a flexible scaling engine and easy-to-configure audio interfaces which can seamlessly convert the LVDS signal source into HDMI /DVI formats as well as the analog RGB legacy display.

Features

- Single channel 18-bit/24-bit LVDS receiver supports display resolution up to 1366x768
- Integrated single channel 18-bit/24-bit LVDS transmitter supports up to 1366x768 resolution
- HDMI/DVI encoder supports up to 1080p
- Support analog RGB (VGA) monitor up to 1920x1080 resolution
- Supports HDMI repeater function
- DDC master for reading EDID (HDMI/DVI only)
- Supports CEC
- Supports Hot Plug Detection (HPD) for HDMI/DVI
- Optional HDCP version 1.1 function
- Three 10-bit high speed DACs
- DACs can be switched off through programming internal registers. Separate sync is supported for RGB signal output
- TV/Monitor connection detection capability. Connection status can be retrieved through internal registers
- Pixel-level color enhancement for brightness, contrast, hue and saturation (VGA only).
- SPDIF audio interface supports either 16-bit or 20-bit stereo data for up to 192kHz/2ch
- Supports I2S digital audio input for up to 24-bit data stream (32kHz/2ch, 44.1kHz/2ch, 48kHz/2ch, 88.2kHz/2ch, 96kHz/2ch, 176.4kHz/2ch and 192kHz/2ch)
- On-chip frame buffer allows flexible input video timing from graphic controller. Frame rate conversion is supported
- Advanced scaling engine to upsize/downsize output display resolution for HDMI, DVI and VGA
- Programmable adaptive de-flickering filter
- Image display rotation supports for HDMI/DVI and VGA outputs. Display can be rotated at 90/180/270 degree or flipped in horizontal/vertical position
- Programmable horizontal/vertical position of the display
- Flexible crystal or oscillator clock input frequency for VGA output (2.3MHz – 64MHz)
- IO and SPC/SPD supply voltages from 1.8V to 3.3V
- Programmable power management
- Device's configuration parameters can be programmed through serial port, or can be automatically loaded through external EEPROM
- Offered in 88-pin QFN package

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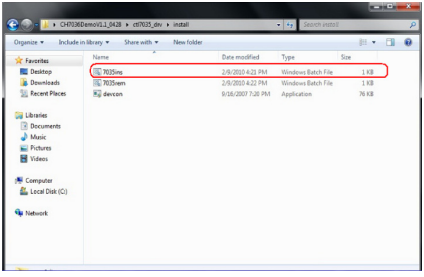
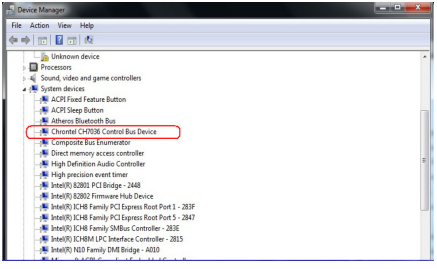
AP Installation

1. Install 7035ins file.



2. Find Control Bus on system device.


Device Manager
File
Action
View
Help
Unknown device
Processors
Sound, video and game controllers
System devices
ACPI Fixed Feature Button
ACPI Sleep Button
Atheros Bluetooth Bus
Chrontel CH7036 Control Bus Device
Composite Bus Enumerator
Direct memory access controller
High Definition Audio Controller
High precision event timer
Intel(R) 82801 PCI Bridge - 2448
Intel(R) 82802 Firmware Hub Device
Intel(R) ICH8 Family PCI Express Root Port 1 - 283F
Intel(R) ICH8 Family PCI Express Root Port 5 - 2847
Intel(R) ICH8 Family SMBus Controller - 283E
Intel(R) ICH8M LPC Interface Controller - 2815
Intel(R) N10 Family DMI Bridge - A010

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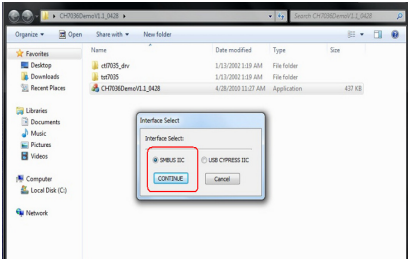
3. Run CH7036 DEMO tool. Select SMBUS IIC and continue.



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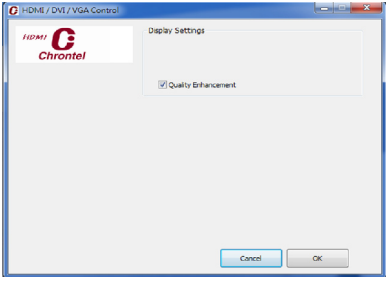
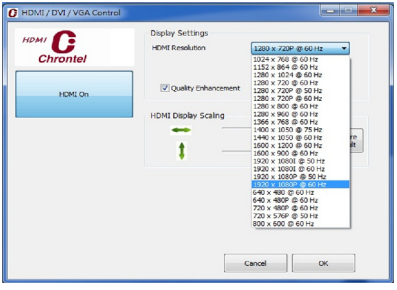
AP Operation

- Initial AP with no device



- Device and resolution change



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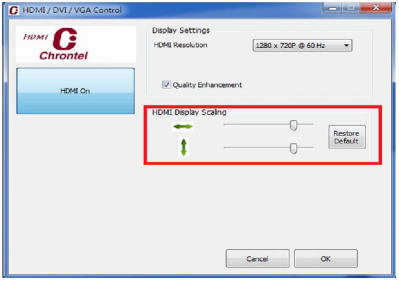
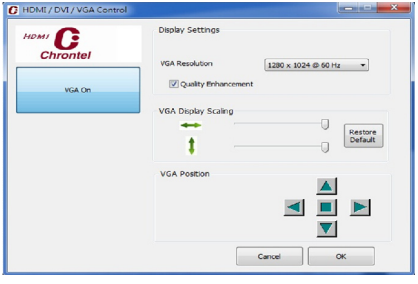
- Scaling rate control



- VGA out and function control



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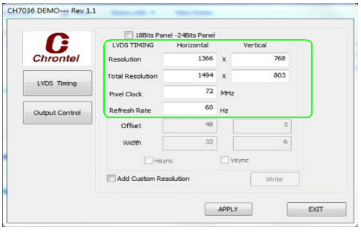
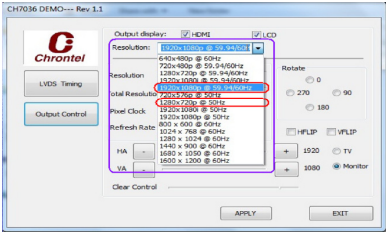
- Confirm LVDS input timing



- Choose HDMI output mode. 1080p, 720p @ 60Hz is standard.



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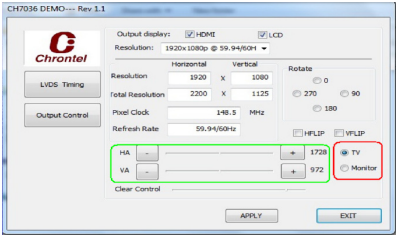
- If overscreen is displayed on TV device, choose TV icon to shrink the display or modulate HA and VA to fit the screen.



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